

Notice of Allowability

Application No.

10/017,014

Examiner

Fred Ferris

Applicant(s)

LOECHER ET AL.

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 20070601.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20070601.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.


FRED FERRIS
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

1. *This office action is responsive to applicants' amendment filed 2 March 2007. Applicants have now cancelled claim 16 by the Examiners' Amendment of record appearing below. Claims 1-15 are currently pending in this application and have now been allowed over the prior art of record.*

EXAMINER'S AMENDMENT

2. *An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.*

Authorization for this examiner's amendment was given in a telephone interview with Michelle Conover on 1 June 2007.

Amend the claims as follows:

*Claim 16 (**cancelled**)*

Response to Arguments

3. *Applicant's arguments filed 2 March 2007 have been fully considered.*
Regarding applicants' response to objection to the specification: The examiner withdraws the objection to the specification in view of applicants' amendment filed 2 March 2007.

Regarding applicants' response to 101 rejections: The examiner withdraws the previous 101 rejection of claims 1-15 since the claims appear to recite a concrete and tangible result by virtue of the derived "wear increments" and "wear data" used to predict remaining lifetime as recited in the independent claims and understood from applicants' specification [0011, 0033]. The rejection of claim 16 is now moot in view of applicants' cancellation of the claim.

Regarding applicants' response to 103(a) rejections: The examiner withdraws the previous 103 rejections in view of applicants arguments filed 2 March 2007 pertaining to the specific application of the multivariate Hermite polynomial modeling wear increments. (see pages 8, 9)

Allowable Subject Matter

4. Claims 1-15 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Applicants are disclosing a method for predicting the remaining lifetime of a device by monitoring parameters contributing to the wear, modeling the wear via training sets, deriving a virtual age formula, and subsequently deriving wear data. This has been disclosed in the prior art of record.

While these elements are individually disclosed in the prior art, the prior art of record does not meet the conditions as suggested in MPEP section 2132, namely:

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913,

1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsisimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)."

In particular, the prior art of record does not explicitly disclose the features noted above in combination with the claimed features of determining coefficient of a multivariate Hermite polynomial for modeling the wear increments determined from a training set operated to failure, where the virtual ages are normalized to a desired norm value, and subsequently deriving a formula from the multivariate Hermite polynomial for the virtual age of the device, and applying the formula to significant parameters from another device type for deriving the wear increments, as required by independent claims 1, 4, and 10.

The prior art of record discloses elements of the claimed invention as follows:

U.S. Patent 5,060,279 issued to Crawford et al: Teaches determining predicted faults of system components using a fault-trained machine learning system for determining the lifetime of a device in a expert system using multivariate Hermite polynomial modeling. However, Crawford does not explicitly the combination of features including determining coefficient of a multivariate Hermite polynomial for modeling the wear increments determined from a training set operated to failure, where the virtual ages are normalized to a desired norm value, and subsequently deriving a formula from the multivariate Hermite polynomial for the virtual age of the device, and applying the formula to significant parameters from another device type for deriving the wear increments, as required by independent claims 1, 4, and 10.

The features noted above as now recited in independent claims 1, 4, and 10 renders the claimed invention non-obvious over the prior art of record. Dependent claims 2, 3, 5-9, and 11-15 are deemed allowable as being dependent from independent claims 1, 4, and 10 respectively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Drawings

5. *The drawings filed on 5 March 2002 are informal and acceptable for examination purposes only. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.*

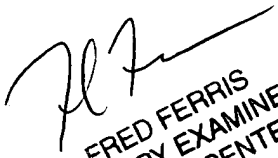
Conclusion

6. *Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the*

Art Unit: 2128

examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached at 571-272-2279. The Official Fax Number is: (571) 273 8300.

Fred Ferris, Primary Examiner
Simulation and Emulation, Art Unit 2128
U.S. Patent and Trademark Office
Randolph Building, Room 5D19
401 Dulany Street
Alexandria, VA 22313
Phone: (571-272-3778)
Fred.Ferris@uspto.gov
June 1, 2007


FRED FERRIS
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100